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ABSTRACT

This report assesses the Alternative Learning Methodologies through Academics (Project ALMA), which is designed to assist the academic progress of 531 Spanish-speaking students of limited English proficiency who attend John Bowne High School in Queens and John F. Kennedy High School in the Bronx. Participating students received instruction in English; native language arts (NLA); and content area subjects of mathematics, science, social studies, and computer science. The project also offered preoccupational training in health-related careers. Project evaluation data show Project ALMA met its objectives for career advancement, grade retention, dropout reduction, and enrollment in postsecondary education. The project did not meet its Spanish native language arts, attendance, and parental involvement objectives. The project partially met its objectives for English as a second language (ESL) instruction (at one site), computer skills (for those taking computer courses), and content area subjects (in science). The report recommends that the project continue to expand the range of computer-skills instruction and to investigate reasons for the project's continuing difficulty in meeting its ESL and NLA objectives. These objectives should be modified if they are deemed unrealistic. Appendices contain a list of instructional materials and class schedules. (GLR)

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ED 371 094

OREA Report

Alternative Learning Methodologies through Academics (Project ALMA)
Transitional Bilingual Education Grant T003A00209
FINAL EVALUATION REPORT
1992-93

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Alternative Learning Methodologies through Academics
(Project ALMA)
Transitional Bilingual Education Grant T003A00209
FINAL EVALUATION REPORT
1992-93

Mr. Gilberto Vega, Director
Project ALMA
Office of High School Bilingual/E.S.L. Programs
E.S.E.A. Central Title VII Programs Unit
1171 65th Street, Room 505
Brooklyn, NY 11219
(718) 236-3543

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EXECUTIVE SUMMARY

Alternative Learning Methodologies through Academics (Project ALMA) was an Elementary and Secondary Education Act (E.S.E.A.) Title VII-funded project in its third year of operation at John Bowne High School in Queens and John F. Kennedy High School in the Bronx. In the year under review, Project ALMA served a total of 531 Spanish-speaking students of limited English proficiency (LEP). This represented an increase of 101 students over the previous year and reflected the continuing influx of immigrants from the Dominican Republic. Participating students received instruction in English as a second language (E.S.L.), native language arts (N.L.A.), and the content area subjects of mathematics, science, and social studies. The program sought to emphasize instruction in mathematics and computer skills.

Although no money was budgeted for staff development, a number of paraprofessionals and teachers working with project students took university courses. In addition, Title VII resource teachers attended a variety of local, state, and national workshops and conferences on bilingual education.

A Bilingual Parents Advisory Committee was active at both sites. At John Bowne High School, project staff provided weekly E.S.L. classes for parents as well as two workshops on parenting and understanding the educational system.

Project ALMA met its objectives for career advisement, grade retention, dropout reduction, and enrollment in postsecondary education. The project did not meet its Spanish N.L.A., attendance, and parental involvement objectives. The project partially met its objectives for E.S.L. (at one site), computer skills (for those taking computer courses), and content area subjects (in science). Because of ambiguities about definitions, OREA could not evaluate the objective for referral to programs for the gifted and talented.

The conclusions, based on the findings of this evaluation, lead to the following recommendations to the project:

- Continue to expand the range of computer-skills instruction offered to project students.

- Investigate reasons for project's continuing difficulty in meeting its E.S.L. and N.L.A. objectives; if these objectives are deemed unrealistic, seek permission from OBEMLA to modify them.

ACKNOWLEDGMENTS

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Additional copies of this report are available from:

Dr. Tomi Deutsch Berney
Office of Educational Research
Board of Education of the City of New York
110 Livingston Street, Room 732
Brooklyn, NY 11201
(718) 935-3790 FAX (718) 935-5490

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I. INTRODUCTION

This report documents the Office of Research, Evaluation, and Assessment's (OREA's) 1992-93 evaluation of the Elementary and Secondary Education Act (E.S.E.A.) Title VII project, Alternative Learning Methodologies through Academics (Project ALMA).

PROJECT CONTEXT

The project operated at John Bowne High School in Queens and John F. Kennedy High School in the Bronx. The settings of the two schools are different. John Bowne High School is in the southern part of Flushing, close to a campus of Queens College. In the previous decade, the surrounding area had received a tide of immigrants from Asia, the Indian subcontinent, and Latin America, which made it one of the most ethnically diverse neighborhoods in New York City. A large number of small businesses provided employment for many of the residents. The immediate neighborhood of John F. Kennedy High School (the Marble Hill section of the Bronx*) was more economically deprived and the population predominantly Latino. The school also draws students from the more affluent Riverdale section of the Bronx, and from northern Manhattan as well.

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*Marble Hill is a geographical curiosity. Until 1895, it was a promontory on the island of Manhattan, separated from the Bronx by Spuyten Duyvil Creek on the west, north, and east. In that year, however, the U.S. Army Corps of Engineers dredged the Harlem River Ship Canal just south of Marble Hill and Spuyten Duyvil Creek was subsequently filled in and covered over. The political boundaries of the borough of Manhattan still follow the lines of the old creek, however; technically, John F. Kennedy High School is in Manhattan.

Of the 3,031 students registered at John Bowne High School, 44 percent were Latino, 23 percent were Asian-American, 20 percent were African-American, and 13 percent were European-American. Twenty-nine percent (878) were of limited English proficiency (LEP). More than one-third (37 percent) were eligible for the federally-funded free-lunch program, an index of poverty.

Of the 4,994 students registered at John F. Kennedy High School, 65 percent were Latino, 20 percent were African-American, 8 percent were European-American, and 6 percent were Asian-American.* Twenty-two percent (1,088) were of limited English proficiency (LEP). Forty-three percent (2,138) were eligible for the free lunch program.

Each high school was housed in a building between 20 and 30 years old, and each was operating above capacity. John F. Kennedy High School was drastically overcrowded (129 percent utilization). Crowding created difficulties for the implementation of the project at both sites. There appeared to be some problems with discipline, despite deployment of security guards. At John F. Kennedy High School, one of the classes which the consultant observed was twice interrupted when a passerby in the corridor opened the door, shouted a remark, and ran away. At the time of the OREA consultant's visit to John Bowne High School, a group of about 60 youths were loitering outside the front door. Once inside, the consultant overheard the following dialogue:

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*Percentages do not add up to 100 due to rounding.

First security guard: They're hanging out in front again.

Second security guard: There's nothing you can do about it.

First security guard: We can do something about it, but we're not allowed to.

If these observed events were representative of the climate at both sites, they suggest the challenges faced by school and project staff trying to provide a supportive and disciplined environment for LEP students at two overcrowded urban high schools. At each site, the project office provided students with a place to study, seek tutoring, and work on a computer during free periods. In both schools, this room was pleasantly decorated and evidently served as a haven for students. At John F. Kennedy High School, however, the office had been created by setting up temporary partitions and could be entered only by passing through a classroom—obviously a limitation to optimum usage.

STUDENT CHARACTERISTICS

Project ALMA served a total of 531 Spanish-speaking LEP students in the ninth through twelfth grades. (See Table 1.) Scores at or below the 40th percentile on the Language Assessment Battery (LAB) determined LEP status. An additional criterion in selection was extreme educational need or interest in the areas of mathematics and computer science.

Male students numbered 232 (43.7 percent) and female 299 (56.3 percent). The majority of participants (359 or 67.6 percent) were born in the Dominican

TABLE 1

Number of Students in Project ALMA,
By Site and Grade Level

High School	Grade				Total
	09	10	11	12	
John Bowne	53	113	90	49	305
John F. Kennedy	40	62	34	40	226
Total	93	175	174	89	531

Republic. (See Table 2 for countries of origin.) The majority of participants (57.8 percent) came from low-income families and were eligible for the free-lunch program.

Needs Assessment

Before instituting the project, the Office of High School Bilingual/English as a Second Language (E.S.L.) Programs of the Board of Education of the City of New York conducted a needs assessment of the students and staff at the two sites. The data obtained from these studies indicated that a substantial Latino immigrant population which had not received Title VII services previously was in need of supplementary services to speed the acquisition of English language skills and facilitate academic success.

TABLE 2

Students' Countries of Origin

Country	Number of Students
Dominican Republic	359
Colombia	38
Ecuador	27
Peru	27
United States	20
El Salvador	15
Mexico	11
Puerto Rico	8
Honduras	7
Guatemala	6
Venezuela	3
Bolivia	2
Costa Rica	2
Nicaragua	2
Uruguay	2
Argentina	1
Panama	1
Total	531

PROJECT OBJECTIVES

Student Objectives

- Seventy percent of the target students will demonstrate an appropriate increase in English language proficiency as indicated by significant improvement at the .05 level of statistical significance when results are analyzed using a correlated *t*-test.

- Seventy-five percent of the Spanish-dominant participants will demonstrate a significant increase in Spanish language achievement as indicated by significant improvement at the .05 level of statistical significance when results are analyzed using a correlated *t*-test.

- Eighty-five percent of all targeted students will achieve a passing grade of 65 or better in the subject areas of mathematics, social studies, and science.

- As a result of participating in the program, 75 percent of program students will show significant gains in computer skills and those enrolled in formal courses will achieve a passing grade of 65 or better.

- All project students will meet on an individual basis with the Bilingual Career Computer Specialist for advisement at least two times during the school year for career orientation and planning.

- As a result of participation in the program, students' grade retention or referral to or placement in special education classes rate will be 10 percent less than mainstream students'.

- As a result of participation in the program, the dropout or absenteeism rate of the students will be less than the mainstream students'.

- As a result of participation in the program, the attendance rate of students will be 10 percent greater than mainstream students'.

- As a result of participation in the program, placement in programs for the gifted and talented and enrollment in postsecondary education institutions will be five percent greater than for similar non-program participants.

- As a result of participation in the program, students' referral to or placement in special education classes rate will be 10 percent less than mainstream students'.

Parental Involvement Objectives

- As a result of the program, parents of project students will demonstrate 10 percent more parental involvement than parents of mainstream students.

The originally proposed objectives for staff training and curriculum development had to be eliminated when no Title VII funds were granted for these components.

PROJECT IMPLEMENTATION

During the 1992-93 school year, Project ALMA provided instructional and support services tc 531 Spanish-speaking students and their families. The project's main goal was to meet the needs of recently-arrived immigrants, stressing the acquisition of English and the development of mathematics and computer skills.

The use of Spanish and English in content area classes varied. At John Bowne High School, it was the policy to infuse as much English as possible into the Spanish-based classes of mathematics and science, and teachers of these subjects were bilingual. There were only two social studies teachers who could teach bilingually, however, and some social studies courses were taught with an E.S.L. methodology. At John F. Kennedy High School, project students in the ninth and tenth grades took all content area courses in Spanish, but most eleventh and twelfth grade instruction used E.S.L. methodology. Neither school had a bilingual teacher in computer science.

Project ALMA offered parental involvement activities at both sites. Project staff attended a variety of conferences and workshops and offered training to new teachers at each site.

Materials, Methods, and Techniques

Project ALMA offered E.S.L. at the literacy, beginning, intermediate, advanced, and transitional levels. Native language arts (N.L.A.) was offered at the literacy, beginning, intermediate, advanced, and advanced placement levels.

Teachers of participating students used a wide array of strategies and techniques, including cooperative learning and computer-assisted instruction (C.A.I.). Most classes made regularly scheduled visits to computer labs to supplement classroom instruction, especially in general science. John Bowne High School programmed about 30 students into the Bilingual Center for Writing, an innovative E.S.L. and N.L.A. program that stressed cooperative learning, the writing process approach, and the production of an annual bilingual literary magazine.

The project organized a number of educational field trips, including a weekend at the Pocono Environmental Education Center in Pennsylvania.

For a list of instructional materials used in the project, please see Appendix A.

Capacity Building

As mandated, the two sites are gradually assuming the cost of programming as Title VII funding abates. The two resource teachers' positions, for example, will be 60 percent tax-levy funded next year as compared to 40 percent in the year under review. The project also reported that next year, the schools would defray the cost of field trips entirely with tax levy funds.

Staff Qualifications

Title VII staff. The project director, two resource teachers, and two educational assistants were funded by Title VII. All were fluent in Spanish.

The project director's responsibilities included the planning and supervision of activities, staff selection and training, and providing evaluation data. The director held a master's degree and a business education license and had more than 15 years' experience teaching LEP students.

The responsibilities of each resource teacher were to coordinate activities, assist classroom teachers in the development and implementation of instructional activities, help plan activities for parents of participating students, and select instructional material. Each resource teacher held a master's degree and had over five years of experience in bilingual education.

The two educational assistants provided classroom assistance in selected E.S.L. and content area classes and tutored students both in the project office and in scheduled periods in the computer lab. One held an associate's degree; the other had earned a high school diploma and 45 college credits.

Other staff. At John Bowne High School, tax levy funds paid the salaries of 54 teachers, two paraprofessionals, and two assistant principals. All teachers were reported to be fully certified in the subjects they taught. At John F. Kennedy High School, tax levy funds paid the salaries of 46 classroom teachers, five paraprofessionals, three bilingual counselors, one bilingual grade advisor who provided counseling, and one assistant principal. Most of the teachers were fully

certified in the areas they taught. One E.S.L. teacher, however, had certification in mathematics and another had certification in French; and 13 teachers held only P.P.T. (Provisional Preparatory Teacher) or T.P.D. (Temporary Per Diem) licenses. Please see Table 3 for the qualifications and language proficiencies (teaching or communicative*) of all non-Title VII-funded staff.

Staff development. Resource teachers at both sites attended state and national conferences as well as a variety of workshops on E.S.L., N.L.A., and the counseling of LEP students. No money was budgeted for tuition assistance, but two Title VII paraprofessionals and 14 teachers were reported to have taken university courses in the fall.

Instructional Time Spent on Particular Tasks

See Appendix B for the daily class schedules of some representative project students.

Length of Time Participants Received Instruction

Students had a mean of 7.0 years (s.d.=1.5) of education in a non-English-speaking school system and 3.3 years (s.d.=1.5) of education in the United States. The median time students participated in Project ALMA was 20 months.

*Teaching proficiency (TP) is defined as the ability to use LEP students' native language in teaching language arts or other academic subjects. Communicative proficiency (CP) is defined as a non-native speaker's basic ability to communicate and interact with students in their native language.

TABLE 3

Qualifications of Non-Title VII-Funded Staff

Position Title	Degree(s)	Certificates/ Licenses	Language Competencies (Spanish)
3 Assistant Principals	3 M.A.	1 E.S.L., 1 Supervision, 1 Bil. Business	3 TP
100 Teachers	74 M.A. 22 B.A. 4 Ph.D.	23 E.S.L., 5 TESOL, 7 English, 9 Spanish, 9 Math, 3 Bil. Math, 9 Sci., 1 Bil. Sci., 13 Soc. Stud., 1 French, 4 Bil. Soc. Stud., 1 Health, 2 Business; 13 PPT or TPD	38 TP; At least 4 CP (one site did not report CP)
3 Bilingual Counselors	3 M.A.	3 Bilingual Guidance	3 TP
1 Bilingual Grade Advisor	B.A.	Spanish	TP
7 Educational Assistants	1 B.A.; 4 High Schl., 2 HS + coll. credits	7 N.Y.C. Paraprofessional Certifications	4 native speakers, 1 CP

Activities to Improve Pre-referral Evaluation Procedures for Exceptional Children

Teachers referred those students thought to be in need of special education services to the School-Based Support Team (S.B.S.T.) for evaluation. At each site, the social worker and psychologist who served on the S.B.S.T. were bilingual in Spanish.

The project did not propose to serve the gifted and talented. Nevertheless, school and project staff used course grades, teacher judgment, and evidence of strong motivation to identify candidates for enrichment activities at each site.

Instructional Services for Students with Special Needs

The project offered C.A.I. and tutoring (by peers as well as staff) to students having difficulty in classes. At John Bowne High School, four gifted and talented students were enrolled in Queens College's "Opportunity to Learn" program. This program offered college-level classes, mentoring by a college student, and part-time employment during the summer.

PARENT AND COMMUNITY INVOLVEMENT ACTIVITIES

The project sponsored a variety of parental involvement activities that included workshops, E.S.L. classes, and field trips.

Speakers from local community businesses and agencies spoke at career assemblies.

II. EVALUATION METHODOLOGY

EVALUATION DESIGN

Project Group's Educational Progress as Compared to That of an Appropriate Non-Project Group

OREA used a gap reduction design to evaluate the effect of language instruction on project students' performance on the standardized tests. Because of the difficulty of finding a valid comparison group, OREA used instead the groups on which the tests were normed. Test scores are reported in Normal Curve Equivalents (N.C.E.s), which are normalized standard scores with a mean of 50 and a standard deviation of 21.1. It is assumed that the norm group had a zero gain in N.C.E.s in the absence of supplementary instruction and that participating students' gains are attributable to project services.

Applicability of Conclusions to All Persons Served by Project

Data were collected from all participating students for whom there were pre- and posttest scores. (There were no pretest data on students who entered the program late; therefore, posttest data for them will serve as pretest data for the following year.) Instruments used to measure educational progress were appropriate for the students involved. The LAB and El Examen de Lectura en Español (ELE) are used throughout New York City to assess growth in English and Spanish skills among students similar to those served by Project ALMA.

INSTRUMENTS OF MEASUREMENT

OREA assessed the E.S.L. student outcome objective by comparing pre- and posttest scores on the LAB. All students were tested at the level that was appropriate for their grade placement.

According to the publisher's test manual, the LAB is valid and reliable. Evidence supporting both content and construct validity is available for the LAB. Content validity is confirmed by an item-objective match and includes grade-by-grade item difficulties, correlations between subtests, and the relationship between the performance of students who are native speakers of English and students who are LEP. To support reliability, KR20 coefficients and standard errors of measurement (SEM) are reported by grade and form for each subtest and total test. Grade reliability coefficients, based on the performance of LEP students on the English version, ranged from .88 to .96 for individual subtests and from .95 to .98 for the total test.

The ELE was prepared by New York City educators who were native speakers of Spanish and represented several Latino linguistic and cultural groups. The ELE was administered in two forms to all New York City students who were receiving language arts instruction in Spanish. For form 1, the grade reliability coefficients ranged from .94 to .96. Comparable data for form 2 will be generated as soon as possible after its administration in the spring of 1993. Items on the test were grade-specific. Construct validity is evidenced by grade-to-grade decreases in item difficulty within level. This characteristic reflects the acquisition of increased amounts

of the underlying construct (reading proficiency) as students progress through the grades.

OREA used final course grades in mathematics, science, and social studies to measure growth in content area subjects, as specified by the content area objective.

DATA COLLECTION AND ANALYSIS

Data Collection

To gather qualitative data, an OREA evaluation consultant visited each site. On each visit, the consultant observed two classes and interviewed the Title VII resource teacher. OREA collected the data and prepared the final evaluation report in accordance with the New York State E.S.E.A. Title VII Bilingual Education Final Evaluation Report format, which was adapted from a checklist developed by the staff of the Evaluation Assistance Center (EAC) East in consultation with the Office of Bilingual Education and Minority Language Affairs (OBEMLA).

Proper administration of instruments. Qualified personnel received training in testing procedures and administered the tests. Testers followed guidelines in the administration manuals accompanying standardized tests. Time limits for subtests were adhered to; directions were given exactly as presented in the manuals.

Testing at 12-month intervals. The LAB was administered at 12-month intervals, following the published norming dates.

Data Analysis

Accurate scoring and transcription of results. Scoring, score conversions, and data processing were accomplished electronically by the Scan Center of the Board

of Education of the City of New York. Data provided by the Scan Center were analyzed in the Bilingual, Multicultural, and Early Childhood Evaluation Unit of OREA. Data collectors, processors, and analysts were unbiased, with no vested interest in the success of the project.

Use of analyses and reporting procedures appropriate for obtained data. To determine the proportion of students increasing their proficiency in English, OREA computed the percentage of students having higher posttest than pretest scores on the LAB. To determine the proportion of students increasing their proficiency in Spanish, OREA performed similar computations with ELE scores. To assess the significance of students' achievement in English and the native language, OREA computed correlated *t*-tests on LAB and ELE N.C.E. scores. The *t*-test determined whether the difference between the pre- and posttest scores was significantly greater than would be expected by chance variation alone.

The only possible threat to validity of any of the above instruments might be that LAB norms were based on the performance of English proficient (EP) rather than LEP students. Since OREA was examining gains, however, this threat was inconsequential—the choice of norming groups should not affect the existence of gains.

III. FINDINGS

PARTICIPANTS' EDUCATIONAL PROGRESS

Project ALMA carried out all instructional activities specified in its original design. The project implemented its computer science instructional component on a smaller scale than originally proposed, but more completely than the previous year.

Participants' Progress in English

Throughout the school year, students had ample opportunity to develop their English language skills.

An OREA consultant observed one E.S.L. class at each site. The class which the project selected for observation at John Bowne High School was part of a special program called the Bilingual Center for Writing. Twenty-three students on the intermediate and advanced level were present. The materials used for the class were photocopied exercises from *React Interact: Situations for Communication*. The teacher spoke entirely in English; the paraprofessional occasionally offered explanations in Spanish and English to small groups and individual students, but these interventions were infrequent.

The lesson was organized around the theme of space travel. Students participated enthusiastically. The teacher made efficient transitions from one activity to another and employed a wide variety of instructional techniques. The class recited each term on a vocabulary list in unison after the teacher read it. Individuals read passages and responded to oral questions, and the class answered on paper

and the chalkboard, and reviewed and corrected one another's work. The students then jotted down notes for themselves in a pre-writing exercise, and broke into groups of four to work cooperatively on the solution to a complex problem.

At John F. Kennedy High School, the OREA consultant observed an intermediate class with 13 students present. All communication was in English. The atmosphere of the class was extremely subdued, and the teacher suggested afterward that the presence of visitors may have had an inhibiting effect on the students.

The lesson began with an exercise from the textbook, *Turning Point*. Students read to themselves a dialogue about life in American high schools and wrote answers to questions about the passage. The teacher then engaged the class in a brief discussion of the concepts of similarities and differences. A student suggested that "similar" was the opposite of "different"; the teacher said it wasn't quite the opposite, and cited the relationship between "shirt" and "jacket" as an illustration. Then she appointed four pairs of students to read sections of the dialogue aloud. She went on to remind the class of what they had learned previously about preparing to write an essay by brainstorming, outlining, and then drafting an introduction—the writing of organized, expressive essays was a main element of the course. The teacher led the students through the process of preparing an essay about the similarities and differences between school in America and school in their native country. She concluded by asking the class to outline the essay for homework.

The evaluation objective for English as a second language was:

- Seventy percent of the target students will demonstrate an appropriate increase in English language proficiency as indicated by significant improvement at the .05 level of statistical significance when results are analyzed using a correlated *t*-test.

There were complete pre- and posttest scores on the LAB for 386 students from grades nine through twelve. (See Table 4.) The average gain of 7.7 N.C.E.s (s.d.=9.2) was statistically significant and was greater than that of the previous year (6.7 N.C.E.s). The overall percentage of students making gains, however, was 66.6 percent, less than the target of 70 percent. At John Bowne High School, the percentage making gains was 62.1 percent, and at John F. Kennedy High School, it was 73.5 percent.

The project partially met its objective for English as a second language. In the previous year, the project did not meet this objective.

Participants' Progress in Native Language Arts

The evaluation objective for N.L.A. was:

- Seventy-five percent of the Spanish-dominant participants will demonstrate a significant increase in Spanish language achievement as indicated by significant improvement at the .05 level of statistical significance when results are analyzed using a correlated *t*-test.

There were complete pre- and posttest scores on the ELE for 93 students. Forty-three percent of these (less than the required 75 percent) showed N.C.E. gains (39.5 percent at John F. Kennedy High School and 46 percent at John Bowne High School). There was a mean loss of 1.6 N.C.E.s (s.d.=12.8), compared to the previous year's gain of 0.6. (See Table 5.)

As in the previous year, Project ALMA did not meet its N.L.A. objective.

TABLE 4

Pretest/Posttest N.C.E. Differences on the
Language Assessment Battery, by Site

High School	Total number of project students	Number of students for whom data were available	Pretest		Posttest		Difference		*t* value
			Mean	S.D.	Mean	S.D.	Mean	S.D.	
John Bowne	305	235	11.4	11.8	18.3	16.8	6.9	9.1	11.58*
John F. Kennedy	226	151	12.5	12.2	21.4	16.2	8.9	9.2	11.85*
Total	531	386	11.8	12.0	19.5	16.6	7.7	9.2	16.39*

*$p < .05$

- Project ALMA students made significant gains on the LAB at both sites and overall.

LEP Participants' Academic Achievement

Subject to the availability of bilingual teaching staff, most ninth and tenth grade content area courses for project students were taught in Spanish. In the higher grades, instruction was more likely to be given with an E.S.L. methodology. Staff at John Bowne High School reported that their policy was to infuse as much English as the students could assimilate at all levels. At both sites, the project made considerable use of computer labs for C.A.I. and also made the computer in the project office available for study and tutoring during students' free periods.

An OREA evaluation consultant observed a bilingual Global Studies 4 class of 18 tenth grade students at John Bowne High School. Many student-made placards decorated the walls of the classroom, but this display did not appear to have been updated frequently, since all the posted material pertained to the presidential election campaign—which had ended more than four months before.

The lesson focused on the tense relations that existed between the United States and Cuba in the early 1960s. The teacher alternated between Spanish and English, with Spanish predominating. Of the two textbooks used during the class, one was in Spanish (*Comprende tu mundo*) and the other was in English (*World History and You*). The teacher wrote dates and events on the chalkboard in English only.

He asked individual students to read passages aloud from one or the other text while he circulated around the room, making sure that students were following along on the correct page in the text. Then he elaborated on the text's description of the Cuban missile crisis, mentioning such evocative details as the drills in which

TABLE 5

Pretest/Posttest N.C.E. Differences on
El Examen de Lectura en Español (ELE), by Site

High School	Total number of project students	Number of students for whom data were available	Pretest		Posttest		Difference		*t* value
			Mean	S.D.	Mean	S.D.	Mean	S.D.	
John Bowne	305	50	48.3	19.2	48.3	19.4	0.0	11.0	0.04
John F. Kennedy	226	43	47.9	19.8	44.5	18.3	–3.4	14.5	–1.55
Total	531	93	48.1	19.4	46.5	18.9	–1.6	12.8	–1.17

- The Project ALMA students for whom pre- and posttest data were available did not, on average, make gains on the ELE.

school children crouched under their desks for protection against anticipated missile strikes. Then he asked the students to imagine that they were the ambassadors to the United States from their native countries (only one student had been born in the United States). Their assignment for the last ten minutes of class was to write a letter to their home government describing the situation and giving advice. Several students appeared to have difficulty understanding these instructions, and the teacher explained the assignment for them individually. As the students wrote, he walked around the room looking at their work and offering comments like "You've got something," "Very diplomatic," etc. When the bell rang, he collected their papers with the promise to let them finish their letters the next day.

At John F. Kennedy High School, the OREA consultant observed a bilingual science class with 29 students. The course used the text *La materia y la energía*, but students did not have copies of the book in class. The teacher slowly dictated principles and definitions for the students to copy. Except for a few scientific terms which were also given in English, all communication was in Spanish. A paraprofessional was present but did not seem to play any significant role. The teacher was lively and organized. When not dictating, he asked thought-provoking questions and let students figure out the answers; he also showed himself ready to explore the implications of students' questions.

The lesson was about the physics of color. The teacher reviewed concepts of wavelength, frequency, amplitude, and refraction. He encouraged the students to use analogies for understanding, comparing light to sound and color filters to water

filters. He challenged the class to predict what color of light would emerge from a series of prisms which he diagrammed on the chalkboard. Then he explored the properties of transparent, translucent, and opaque objects. Near the end of the period he asked, "What will a red book look like if we shine a pure green light on it?" When students offered a variety of answers, he asked them to explain their predictions before he explained the right answer (black).

The content area objective was:

- Eighty-five percent of all targeted students will achieve a passing grade of 65 or better in the subject areas of mathematics, social studies, and science.

This objective was proposed for the first time in the year under review. Project students met the objective in science at John F. Kennedy High School both semesters and at John Bowne High School in the spring; the objective was not met in mathematics and social studies. (See Table 6.)

The project partially met its content area objective.

Participants' Progress in Computer Skills

The project's design emphasized instruction in computer skills as well as mathematics. In the past, the unavailability of bilingual computer science teachers and the schools' prerequisites for computer courses had prevented most project students from studying in this area. Project staff and the school administration at each site made adjustments in the year under review, and introductory keyboarding and computer skills was offered in addition to computer-assisted instruction (C.A.I.).

TABLE 6

Passing Grades in Content Area Subjects, by Site

High School	Content Area Subject	Fall 1992		Spring 1993	
		Number of students for whom data were reported	Percent Passing	Number of students for whom data were reported	Percent Passing
John Bowne	Math	219	49.3	215	74.0
	Science	171	64.9	121	94.2
	Social Studies	236	80.5	211	77.7
John F. Kennedy	Math	138	75.4	116	73.3
	Science	136	89.0	125	91.2
	Social Studies	184	80.4	162	79.0

- Except in social studies at both sites and mathematics at John F. Kennedy High School, project students made considerable gains from fall to spring in the content areas.

At John Bowne High School, the Title VII paraprofessional regularly assisted the project students in this class. At the same site, about half a dozen students took business courses that not only increased computer skills but reinforced E.S.L. by emphasizing the composition of business documents on a word processor. At John F. Kennedy High School, the project reserved a daily period in a computer lab for voluntary work on word processing and database software.

The OREA consultant observed a computer lab at John F. Kennedy High School. Every science and mathematics course at that site devoted one period a week to C.A.I. in one of the school's five computer labs. In the session observed, 26 students were using 17 computers to prepare for a test on electric circuits. The software being used combined written questions with dynamic illustrations. For example, the students moved icons representing appliances and segments of wiring around the screen in order to form a series or parallel circuit. The software was in English; oral communication in the class was mostly in Spanish. A bilingual teacher offered individualized assistance.

The evaluation objective for computer skills, modified for the year under review to reflect the fact that only a minority of the project students would take computer courses, was:

- As a result of participating in the program, 75 percent of program students will show significant gains in computer skills and those enrolled in formal courses will achieve a passing grade of 65 or better.

Project staff submitted to OREA partial printouts of the work of 29 students. While this did not provide the data to allow evaluation of the first part of the

objective, it represented progress over previous years in documenting the activities of students in the computer program.

For the second part of the objective, OREA evaluated final course grades. Of the 12 project students who enrolled in computer courses in the fall, eight (66.7 percent) passed. Of the 17 students who enrolled in computer courses in the spring, 15 (88.2 percent) received passing grades, a marked improvement over the fall.

The project partially met its computer skills objective, which OREA had been unable to evaluate in the previous year for lack of data.

FORMER PARTICIPANTS' PROGRESS IN ENGLISH LANGUAGE CLASSROOMS

Twelve students were mainstreamed at the end of the school year previous to that under review. Data were reported on nine students. Of the nine students enrolled in mainstream English during the fall, eight passed. During the spring, eight students enrolled, and all eight passed. In mathematics, six students enrolled in the fall and all passed; none enrolled in the spring. In science, five out of six students passed in the fall and three out of four in the spring. Eight students took social studies in the fall and nine in the spring, and all passed.

OVERALL EDUCATIONAL PROGRESS ACHIEVED THROUGH PROJECT

Educational Field Trips

Project students at both sites made field trips that had a cultural or vocational orientation. Students from John Bowne High School visited Ellis Island, the Statue of

Liberty, a Broadway musical, and a career exposition at St. John's University. Students from John F. Kennedy High School visited NYNEX corporate headquarters, the American Museum of Natural History, the Bronx County Courthouse, and the United Nations. At the latter two institutions, Spanish-speaking professionals spoke to the students about their work. The year's culminating field trip for project students at John F. Kennedy High School was a weekend at the Pocono Environmental Education Center in Pennsylvania. All trips served as incentives, since they were open only to students whose teachers felt they had met standards of good or improved attendance, performance, or behavior.

Career Advisement

The project proposed one objective for career advisement:

- All project students will meet on an individual basis with the Bilingual Career Computer Specialist for advisement at least two times during the school year for career orientation and planning.

Project staff reported that 525 (98.9 percent) of the participating students met with the counselor the required number of times. A series of guest speakers addressed project students at John F. Kennedy High School about a variety of careers, including those in law enforcement and telecommunications.

The project met its career advisement objective, as in the previous year.

Grade Retention

Project ALMA proposed the following objective for grade retention:

- As a result of participation in the program, students' grade retention rate will be 10 percent less than mainstream students'.

None of the participating students were retained in grade at John Bowne High School, but 37 students (16.4 percent) were retained at John F. Kennedy High School. Schoolwide rates of retention were, respectively, 15.1 and 21 percent. The previous year, the project students' rates of retention at the two sites had been zero and 21.8 percent, respectively.

The project met its objective for grade retention, which it had partially met in the previous year.

Dropout Prevention

Project ALMA proposed the following dropout prevention objective:

- As a result of participation in the program, the dropout or absenteeism rate of the students will be less than the mainstream students'.

No students dropped out at John Bowne High School; one student (0.4 percent) dropped out at John F. Kennedy High School. No project students had been reported as dropouts the previous year. The schoolwide dropout rates were 3.6 percent and 6.1 percent, respectively.

Project ALMA met its objective for dropout prevention, as in the previous year.

Attendance

The project had one attendance objective:

- As a result of participation in the program, the attendance rate of students will be 10 percent greater than mainstream students'.

The project attendance rate was 93.0 percent at John Bowne High School as compared to a mainstream rate of 87 percent. At John F. Kennedy High School, the rate was 90.4 percent as compared to a mainstream rate of 84 percent. While the

project rates were higher, they did not exceed the mainstream rates by the proposed 10 percent. The project figures were slightly higher, however, than in the previous year, when they had been 92.4 percent and 90.0 percent.

The project did not meet its attendance objective.

Placement in Gifted and Talented Programs

The project had one objective for placement in programs for the gifted and talented:

- As a result of participation in the program, placement in programs for the gifted and talented will be five percent greater than for similar non-program participants.

As a result of the evaluator's uncertainty as to what activities should be counted as programs for the gifted and talented, together with excessive aggregation of data on participation in advanced placement courses at one of the sites, OREA was unable to evaluate this objective. The evaluator and project director subsequently agreed upon categories and procedures to insure that the objective would be evaluated in the year following the year under review.

The gifted and talented objective could not be measured. In the previous year, it was not met.

Referral to Special Education

- As a result of participation in the program, students' referral to or placement in special education classes rate will be 10 percent less than mainstream students'.

No project students were referred to special education programs. The schoolwide rates of referral were 0.4 percent at John Bowne High School and 5.7 percent at John F. Kennedy High School.

The project met its objective for special education.

Enrollment in Postsecondary Education Institutions

The project had one objective for enrollment in postsecondary education institutions:

- As a result of participation in the program, enrollment in postsecondary education institutions will be five percent greater than similar non-program participants.

Twenty graduating seniors (91 percent) at John Bowne High School and 27 (82 percent) at John F. Kennedy High School indicated that they would be enrolling in postsecondary educational institutions upon graduation. The schoolwide rates were 82 and 73 percent, respectively. In the previous year, the project did not provide information on the number of students planning to enroll in college.

The project met its objective for participant enrollment in postsecondary institutions.

CASE HISTORY

Hector (a pseudonym) was 12 years old when his family immigrated from the Dominican Republic. His parents were professional people. A year later, in the fall of 1991, he entered John F. Kennedy High School as a freshman. In his second semester, he began frequenting the project office during free periods. Finding the atmosphere there stimulating and encouraging, he soon became a daily visitor.

Hector took the opportunity to practice his English in conversation with the staff as well as other students, to discuss his schoolwork, and to become familiar with the computer. He availed himself of other project services too, attending Spanish dramas and going on the weekend trip to the Pocono Environmental Education Center. His mathematics grades rose from the eighties to the nineties, and he achieved a score of 96 percent on the Regents examination in sequential mathematics I. In his sophomore year, he became a peer tutor in mathematics. He also made steady progress in English proficiency. As a result of scoring above the 40th percentile on the LAB in spring 1993, Hector was mainstreamed at the start of his junior year.

STAFF DEVELOPMENT OUTCOMES

The project proposed no objectives for staff development, but staff voluntarily engaged in several activities to update their skills and knowledge in the field of bilingual education. Resource teachers at both sites attended several workshops on E.S.L. and N.L.A. as well as the annual conferences of the National Association for Bilingual Education (NABE) and the New York State Association for Bilingual Education (SABE). Teachers of participating students at John Bowne High School attended a variety of conferences on dual literacy and multicultural education. The resource teacher attended a two-part institute for counselors of LEP students.

PARENTAL INVOLVEMENT OUTCOMES

At both sites, parents were invited to participate in field trips, and the Bilingual Parent Advisory Council (BPAC) met regularly. At John Bowne High School, the project offered E.S.L. classes for parents of participating students one night a week during the spring semester. About 30 parents attended these classes. The project also offered two parent workshops—one on the school's graduation requirements, the other on communication within the family.

Project ALMA proposed one parental involvement objective:

- As a result of the program, parents of project students will demonstrate 10 percent more parental involvement than parents of mainstream students.

Project parents at John Bowne High School had a slightly higher rate and at John F. Kennedy High School a lower rate of attendance than mainstream parents. (See Table 7.)

The project did not meet its objective for parental involvement, which it had partially met the previous year.

TABLE 7

Rates of Parental Attendance at Open School Day/Evening

John Bowne High School			
Fall		*Spring*	
Project Parents	26.9	Project parents	25.7
Mainstream Parents	25.8	Mainstream parents	20.9
Difference	1.1	Difference	4.8
John F. Kennedy High School			
Fall		*Spring*	
Project Parents	16.6	Project Parents	22.0
Mainstream Parents	26.0	Mainstream Parents	21.2
Difference	–9.4	Difference	0.8

IV. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

ACHIEVEMENT OF OBJECTIVES

Project ALMA met its objectives for dropout reduction, grade retention, career advisement, and enrollment in postsecondary institutions. The project partially met its E.S.L., computer skills, and content area objectives. The project did not meet its N.L.A., attendance, or parental involvement objectives.

Participating students in Project ALMA showed some academic progress. Of the 442 participating students in grades 9 through 11, 405 (92 percent) were promoted to the next grade. The students achieved a statistically significant mean gain in English language proficiency, although not enough of them made gains for the project to meet its objective in this area. Nor did the project meet its N.L.A. objective; in fact, students were found to have lost ground compared to the group on which the Spanish reading test was normed. The project met its rather ambitious objective for content area passing rates (85 percent) in science only—for both semesters at one site, and for one semester at the other.

Project students at both sites had significantly better attendance rates than their mainstream peers, although the difference was not large enough to meet the target which the project had set for itself. Project ALMA did meet its objective for dropout reduction, however. It appears that the project was effective in fostering students' interest in and involvement with school.

Although the project had no objectives for staff development, resource specialists strove to keep themselves current by attending workshops and conferences; several participating teachers enrolled in university courses.

The project provided several opportunities for parents, including a BPAC and invitations to accompany students on field trips. Weekly E.S.L. classes and two workshops were offered by the project at John Bowne High School.

MOST AND LEAST EFFECTIVE COMPONENTS

Effective components of Project ALMA were the bilingual science instruction, the use of computer labs for C.A.I. in the content areas, and the educational field trips. The evaluation consultant was also struck by the enthusiasm with which students made use of the project office as a welcoming, orderly place to study and seek tutoring or counseling. This was true at both sites, but especially at John Bowne High School, where the physical arrangement of the office made it more accessible.

Least effective components of the project, judging by quantitative results, were the N.L.A. and mathematics instructional programs. The project made progress in providing computer skills instruction and documenting students' achievements in this area, but it did not appear to have implemented this component as fully as proposed.

RECOMMENDATIONS TO ENHANCE PROJECT EFFECTIVENESS

- Continue to expand the range of computer skills instruction offered to project students.
- Investigate reasons for project's continuing difficulty in meeting its E.S.L. and N.L.A. objectives; if these objectives are deemed unrealistic, seek permission from OBEMLA to modify them.

APPENDIX A

Instructional Materials

E.S.L.

Real Stories, Book A	Katz *et al.*	Globe	1978
Picture Stories	S. Heyer	Prentice Hall	1989
Side by Side	Molinsky & Bliss	Prentice Hall	1983
Line by Line	Molinsky & Bliss	Prentice Hall	1983
Everyday English II, III	Krulik & Zaffran	National Textbook	1991
Second Steps in Reading & Writing		Newberry	1991
Turning Points, books 1-4	Iantorno & Papa	Addison-Wesley	1987
Writing Power	Graham & Young	Globe	1980
Great American Stories I, II	C. Draper	Prentice Hall	1985
Pizza Tastes Great	William Pickett	Prentice Hall	1988
Silas Marner [adapted]	G. Eliot	Globe	1942
Jane Eyre [adapted]	C. Brontë	Globe	1986
Our Town	T. Wilder	Harper & Row	1985

N.L.A.

Graded Spanish Reader	J. Ulloa	D.C. Heath	1991
Aventuras literarias	Jarvis, Lebredo, Meda	D.C. Heath	1987
El Español y su estructura	Burunat & Starcevic	Holt, Rinehart	1983
Lenguaje	J. Chow	Holt, Rinehart	1984
El hidalgo de la Mancha	D. Quilter	Houghton Mifflin	1973
La familia de Pascual Duarte	C.J. Cela	Appleton-Century Crofts	1961
La perla negra	S. O'Dell	Lectorum	1990
Crónica de una muerte anunciada	G. G. Márquez		1982
La barca sin pescador	A. Pasona	Oxford	1972
La dama del alba	A. Pasona	Holt, Rinehart	1981
La mala hora	G.G. Marquez	Obeja Negra	1985
El aleph	J.L. Borges		1945

Mathematics

Achieving Competence in Math	Mandery & Schneider	Amsco	1987
Fundamentos de matemáticas		NYC Board of Ed.	1989
Consumer Mathematics	Mason, Lange, & Rousos	Houghton Mifflin	1988
Using Computers	Elgaren & Pasamentier	Addison-Wesley	1984
Matemática progresiva I, II		Attanasio & Associates	
Repaso matemático	E. Stein	Allyn & Bacon	1971
Integrated Mathematics	Dressler & Keenan	Amsco	1980
Invitación a las matemáticas		Scott, Foresman	1986
Exitos en las matemáticas	Vogelli & Le Blanc	Silver Burdett	1983

APPENDIX A

Instructional Materials, cont'd.

Science

Concepts in Modern Biology	D. Kraus	Globe	1984
La materia y la energía	Heimler & Price	Charles E. Merrill	1985
Exploring Matter and Energy	D. Kiefer	Globe	1991
Biología humana	Dihigo & Llanos	Artes Graficas Colmoff	1988
Biology and Human Progress	Tanzer & Schwartz	Prentice Hall	1986
Physical Science	Hurd & Silva	Prentice Hall	1988

Social Studies

Nueva historia de los EE.UU.	Gines & Serran-Pagan	Minerva	1986
Comprende tu mundo	Killoran & Zimmer	Jarrett	1991
Historia del antiguo continente	Gonzalez & Augusto	Editorial Norma	1977
Japón--Tierra del origen del sol	Rosenfeld & Geller	Barron's	1974
China--el reino medio	Rosenfeld & Geller	Barron's	1974
El mundo y su gente	Arnsdorf	Silver Burdett	1984
Economics for Young Adults	B. Linder	Sadlier	1977
World History and You	V. Bernstein	Sleck-Vaughn	1991

APPENDIX B

Class Schedules

As a sample of the students' schedules of instruction, the project submitted a daily schedule for a representative student in each grade level at John F. Kennedy High School. The school day was divided into nine 40-minute periods. (Seniors had a shorter day of eight periods.)

	Grade 9	Grade 10	Grade 11	Grade 12
Period 1	—	—	Business/E.S.L.	Bil. Economics
Period 2	Spanish 8	Bil. Fund. Math 2	Bil. U.S. Hist.2	Business Keyboarding
Period 3	Phys. Ed.	E.S.L. 2 (Supp)	Phys. Ed.	Transition. Engl. Writing
Period 4	E.S.L. 2 (Supp)	E.S.L. 2 (Supp)	Business/E.S.L.	E.S.L. 7-8
Period 5	E.S.L. 2 (Supp)	Bil. Global Stud. 4	Bil. Phys. Sci. 2	Lunch
Period 6	Lunch	Lunch	Lunch	Phys. Ed.
Period 7	E.S.L. 2	E.S.L. 2	E.S.L. 5	A.P. Spanish
Period 8	Bil. Pre-Algebra	Spanish B	Spanish F	Business Computers 2
Period 9	Bil. Glob. Stud. 2	Phys. Ed.	Bil. Pre-Algebra	